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ABSTRACT

This profusely illustrated and informally written booklet describes how people can help solve a growing problem--garbage. The following 12 tips are presented: (1) Reduce the amount of unnecessary packaging; (2) Adopt practices that reduce waste toxicity; (3) Consider reusable products; (4) Maintain and repair durable products; (5) Reuse bags, containers, and other items; (6) Borrow, rent, or share items used infrequently; (7) Sell or donate goods instead of throwing them out; (8) Choose recyclable products and containers and recycle them; (9) Select products made from recycled materials; (10) Compost yard trimmings and some food scraps; (11) Educate others on source reduction and recycling practices and make your preferences known to manufacturers, merchants, and community leaders; (12) Be creative--find new ways to reduce waste quantity and toxicity. Appendix A contains source reduction alternatives for around the home, Appendix B defines reusable vocabulary, and Appendix C contains a list of Environmental Protection Agency resources. Brightly colored drawings accompany almost every page of the text. (PR)

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EPA530-K-92-003
August 1992

Solid Waste and Emergency Response (OS-305)

EPA

The Consumer's Handbook for Reducing Solid Waste

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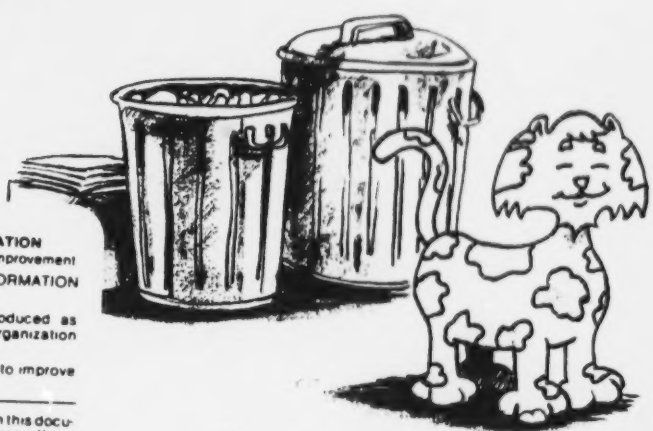

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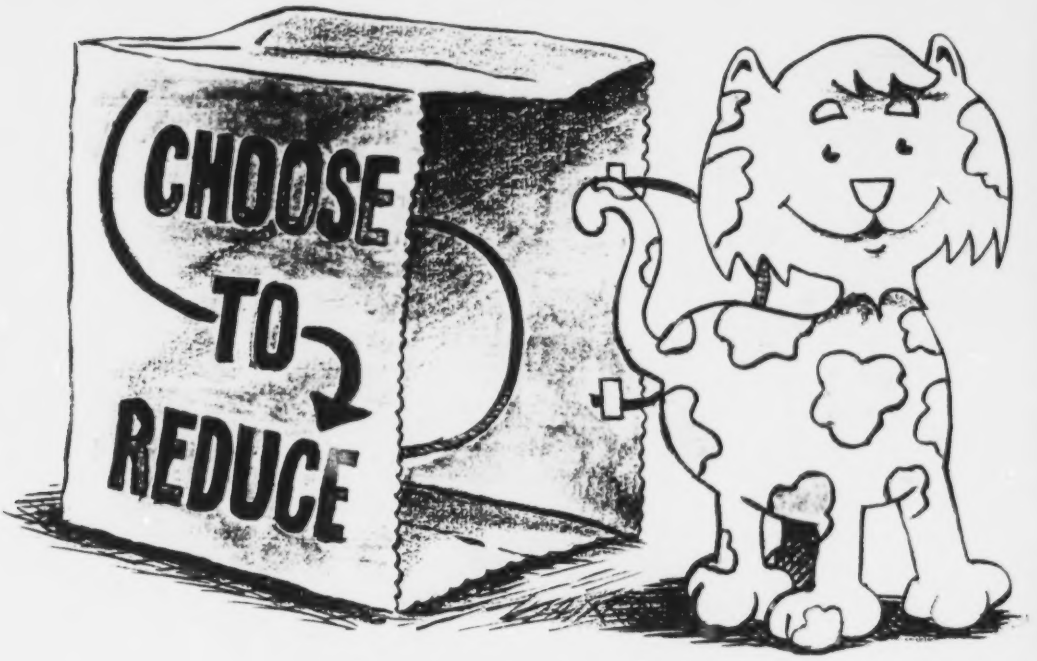
The Cat's Out of the Bag



• Reduce • Reuse
• Recycle • Respond

This booklet describes how people can help solve a growing problem...garbage! Individual consumers can help alleviate America's mounting trash problem by making environmentally aware decisions about everyday things like shopping and caring for the lawn. Like the story that says cats have nine lives, so do many of the items we use every day. Empty cans and jars can be reused to store many items, such as nails or thumbtacks. The baking soda bought to bake a cake also can be used to scrub kitchen counters. The container that began its life as a plastic milk jug can be washed and reused to water plants, create an arts and crafts project, or be transformed into a bird feeder. Eventually, the milk jug can be recycled to create a new plastic product.

Reusing products is just one way to cut down on what we throw away. This booklet outlines many practical steps to reduce the amount and toxicity of garbage. These aren't the only steps that can be taken to reduce waste, but they're a good start.

The Problem Is Too Much Trash

Each year, Americans generate millions of tons of trash in the form of wrappings, bottles, boxes, cans, grass clippings, furniture, clothing, phone books, and much, much, more. Over the years, we have gotten used to "throwing it away," so it's easy to understand why now there's too much trash and not enough acceptable places to put it.

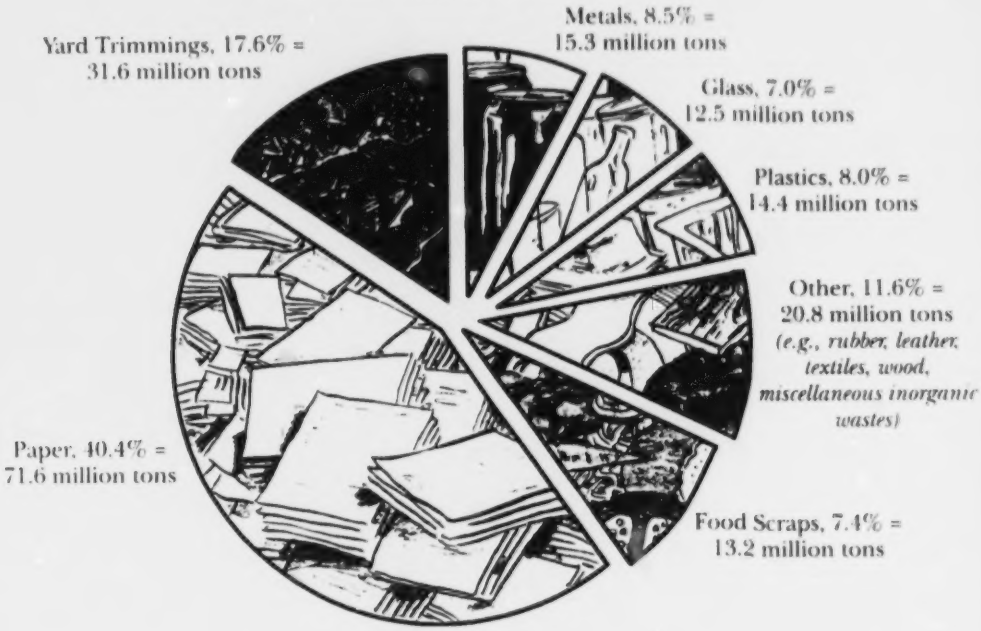
In less than 30 years, durable goods (tires, appliances, furniture) and nondurable goods (paper, certain disposable products, clothing) in the solid waste stream nearly tripled. These now account for about 75 million tons of garbage per year. At the same time, container and packaging waste rose to almost 57 million tons per year, making packaging the number one component of the nation's waste stream. Container and packaging material includes glass, aluminum, plastics, steel and other metals, and paper and paperboard. Yard trimmings such as grass clippings and tree limbs are also a substantial part of what we throw away. In addition, many relatively small components of the national solid waste stream add up to millions of tons. For example, even 1 percent of the nation's waste stream amounts to almost 2 million tons of trash each year.

Source Reduction: A Basic Solution

As a nation, we are starting to realize that we can't solve the solid waste dilemma just by finding new places to put trash. Across the country, many individuals, communities, and businesses have found creative ways to reduce and better manage their trash through a coordinated mix of practices that includes source reduction (see box on page 4).

Simply put, source reduction is waste prevention. It includes many

What's In America's Trash?



Total Weight = 179.6 Million Tons
(1988 Figures)

actions that reduce the overall amount or toxicity of waste created. Source reduction can conserve resources, reduce pollution, and help cut waste disposal and handling costs (it avoids the costs of recycling, composting, landfilling, and combustion).

Source reduction is a basic solution to the garbage glut: less waste means less of a waste problem. Because source reduction actually prevents the generation of waste in the first place, it comes before other management options that deal with trash after it is already generated. After source reduction, recycling (and composting) are the preferred waste management options because they reduce the

Integrated Waste Management

Integrated waste management refers to the complementary use of a variety of practices to safely and effectively handle municipal solid waste. The following is EPA's preferred hierarchy of approaches.

1. **Source reduction** is the design, manufacture, purchase, or use of materials (such as products and packaging) to reduce the amount or toxicity of trash generated. Source reduction can help reduce waste disposal and handling costs because it avoids the costs of recycling, municipal composting, landfilling, and combustion. It also conserves resources and reduces pollution.

2. **Recycling** is the process by which materials are collected and used as raw materials for new products. There are four steps in recycling: collecting the recyclable components of municipal solid waste, separating materials by type (before or after collection), processing them into reusable forms, and purchasing and using the goods made with reprocessed materials. Recycling prevents potentially useful materials from being landfilled or combusted, thus preserving our capacity for disposal. Recycling often saves energy and natural resources. **Composting**, a form of recycling, can play a key role in diverting organic wastes from disposal facilities.

3. **Waste combustion and landfilling** play a key role in managing waste that cannot be reduced or recycled. Combustion in specially designed facilities reduces the bulk of waste and provides the added benefit of energy recovery. Source reduction and recycling can remove items from the waste stream that may be difficult to burn, cause potentially harmful emissions, or make ash management problematic. Landfilling is—and will continue to be—a major component of waste management. The portion of waste requiring incineration or land disposal can be significantly reduced by examining individual contributions to garbage and by promoting the wise use and reuse of resources.

amount of waste going to landfills and conserve resources.

Making Source Reduction Work

Putting source reduction into practice is likely to require some change in our daily routines. Changing habits does not mean a return to a more difficult lifestyle, however. In fact, just the opposite may happen. If we don't reduce waste, the economic and social costs of waste disposal will continue to increase, and communities—large and small, urban and suburban—will face increasingly harder decisions about managing their trash.

All parts of society need to work together to change current patterns of waste generation and disposal. The federal government develops and provides information and looks for incentives to create less waste. It also helps communities plan and carry out source reduction measures. State, local, and tribal governments can create the most appropriate source reduction measures for their areas. For example, some communities already are using fee systems that require households and businesses to pay for trash disposal based on the amount they toss out.

Large consumers—manufacturers, retailers, restaurants, hotels, schools, and governments—can prevent waste in a variety of ways, including using products that create less trash. Manufacturers also can design products that use fewer hazardous components, require less packaging, are recyclable, use recycled materials, and result in less waste when they are no longer useful.

Individuals can evaluate their daily waste-producing activities to determine those that are essential (such as choosing medicines and foods packaged for safety and health), and those that are not (such as throwing away glass or plastic jars that could be reused or locally recycled). This booklet suggests many practices that reduce waste or help manage it more effectively. Adopt those that are right for you and add others that you think

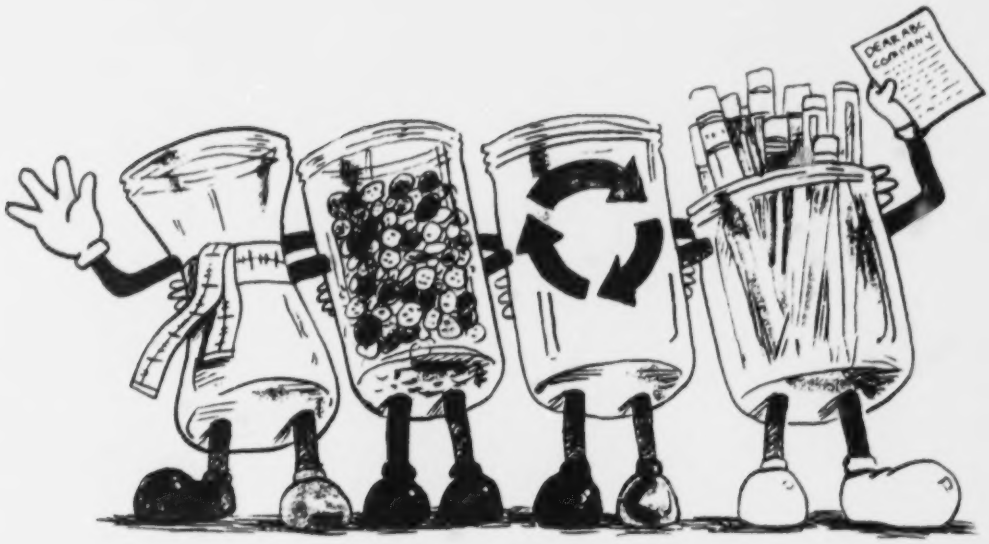
of yourself. Discuss your ideas with neighbors, businesses, and other members of your community. It's important to remember that all actions will have some effect on the environment. If reusable products need to be washed, for example, there may be an increase in water use. Individual consumers, however, can substantially reduce solid waste by following these basic principles:

REDUCE the amount of trash discarded.

REUSE containers and products.

RECYCLE. Use recycled materials, and compost.

RESPOND to the solid waste dilemma by reconsidering waste-producing activities and by expressing preferences for less waste.



Tips for Reducing Solid Waste

REDUCE

1. Reduce the amount of unnecessary packaging.
2. Adopt practices that reduce waste toxicity.

REUSE

3. Consider reusable products.
4. Maintain and repair durable products.
5. Reuse bags, containers, and other items.
6. Borrow, rent, or share items used infrequently.
7. Sell or donate goods instead of throwing them out.

RECYCLE

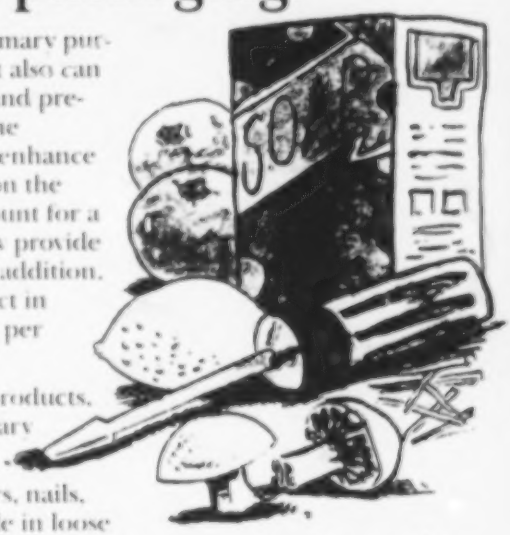
8. Choose recyclable products and containers and recycle them.
9. Select products made from recycled materials.
10. Compost yard trimmings and some food scraps.

RESPOND

11. Educate others on source reduction and recycling practices. Make your preferences known to manufacturers, merchants, and community leaders.
12. Be creative—find new ways to reduce waste quantity and toxicity.

1.

Reduce the amount of unnecessary packaging.



Packaging serves many purposes. Its primary purpose is to protect and contain a product. It also can prevent tampering, provide information, and preserve hygienic integrity and freshness. Some packaging, however, is designed largely to enhance a product's attractiveness or prominence on the store shelf. Since packaging materials account for a large volume of the trash we generate, they provide a good opportunity for reducing waste. In addition, keep in mind that as the amount of product in a container increases, the packaging waste per serving or use usually decreases.

- When choosing between two similar products, select the one with the least unnecessary packaging.
- Remember that wrenches, screwdrivers, nails, and other hardware are often available in loose bins. At the grocery, consider whether it is necessary to purchase items such as tomatoes, garlic, and mushrooms in prepackaged containers when they can be bought unpackaged.
- When appropriate, use products you already have on hand to do household chores (see Appendix A). Using these products can save on the packaging associated with additional products.
- Recognize and support store managers when they stock products with no packaging or reduced packaging. Let clerks know when it's not necessary to double wrap a purchase.
- Consider large or economy-size items for household products that are used frequently, such as laundry soap, shampoo, baking soda, pet foods, and cat litter. These sizes usually have less packaging per unit of product. For food items, choose the largest size that can be used before spoiling.
- Consider whether concentrated products are appropriate for your needs. They often require less packaging and less energy to transport to the store, saving money as well as natural resources.
- Whenever possible, select grocery, hardware, and household items that are available in bulk. Bulk merchandise also may be shared with friends or neighbors.
- It is important to choose food servings that are appropriate to your needs. One alternative to single food servings is to choose the next largest serving and store any leftovers in a reusable container.

2.

Adopt practices that reduce waste toxicity.

In addition to reducing the amount of materials in the solid waste stream, reducing waste toxicity is another important component of source reduction. Some jobs around the home may require the use of products containing hazardous components. Nevertheless, toxicity reduction can be achieved by following some simple guidelines.

Take actions that use nonhazardous or less hazardous components to accomplish the task at hand. Examples include choosing reduced mercury batteries, or planting marigolds in the garden to ward off certain pests rather than using pesticides. In some cases you may be using less toxic chemicals to do a job and in others you may use some physical method, such as sandpaper, scouring pads, or just a little more elbow grease, to achieve the same results.

Learn about alternatives to household items containing hazardous substances. In some cases, products that you have around the house can be used to do the same job as products with hazardous components. (See Appendix A or check with local libraries or bookstores for guidebooks on nonhazardous household practices.)

If you do need to use products with hazardous components, use only the amounts needed. Leftover materials can be shared with neighbours or donated to a business, charity, or government agency, or, in the case of used motor oil, recycled at a participating service station. Never put leftover products with hazardous components in food or beverage containers.

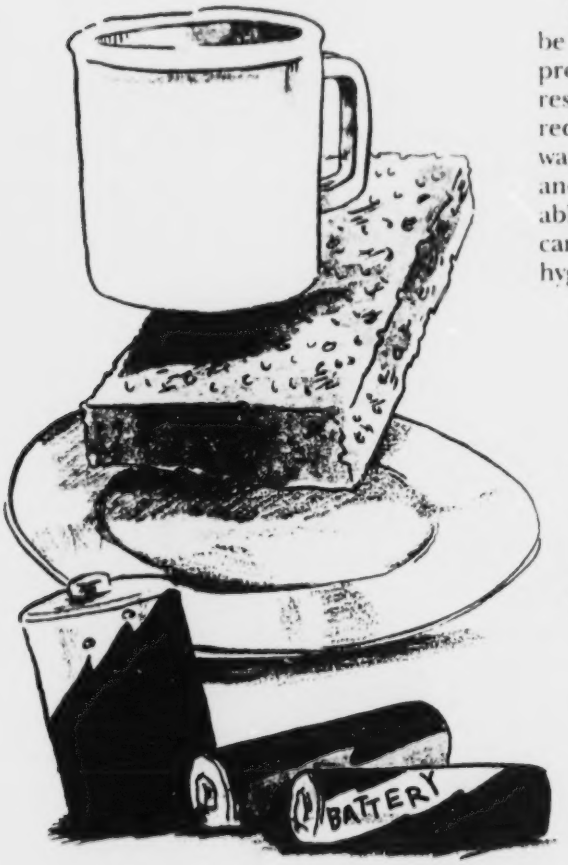
For products containing hazardous components, read and follow all directions on product labels. Make sure the containers are always labelled properly and stored safely away from children and pets. When you are finished with containers that are partially full, follow local community policy on household hazardous waste disposal (see box on "Household Hazardous Waste Collection" on the next page). If at any time you have questions about potentially hazardous ingredients in products and their impacts on human health, do not hesitate to call your local poison control center.

Household Hazardous Waste Collection

For leftover products containing hazardous components, check with the local environmental agency or Chamber of Commerce to see if there are any designated days in your area for collection of waste materials such as leftover paints, pesticides, solvents, and batteries. On such days, qualified professionals collect household hazardous wastes at a central location to ensure safe management and disposal. Some communities have permanent household hazardous waste collection facilities that accept wastes year-round. Some collections also include exchanges of paints, solvents, certain pesticides, cleaning and automotive products, and other materials. Exchanges allow materials to be used by someone else, rather than being thrown away.

3.

Consider reusable products.

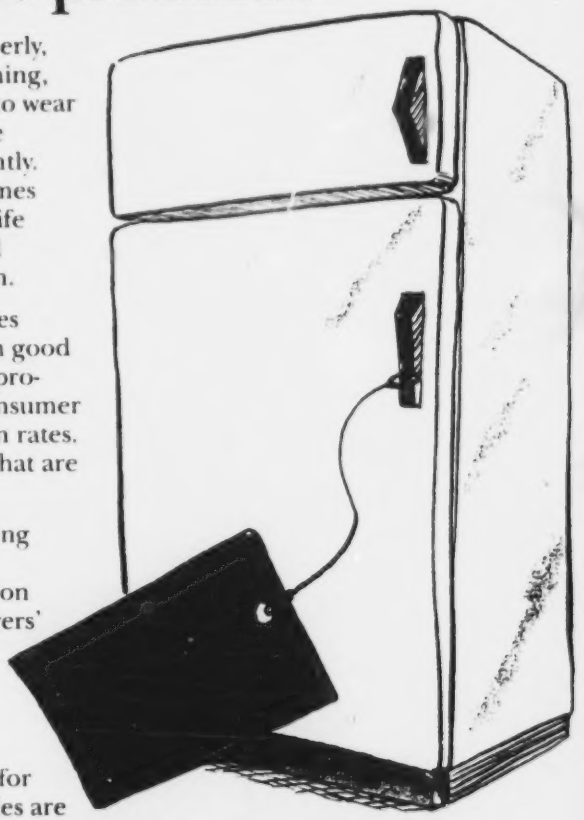


Many products are designed to be used more than once. Reusable products and containers often result in less waste. This helps reduce the cost of managing solid waste and often conserves materials and resources. (Remember, reusable containers for food must be carefully cleaned to ensure proper hygiene.)

- A sturdy mug or cup can be washed and used time and again. Many people bring their own mugs to work, meetings, and conferences.
- Sturdy and washable utensils and tableware can be used at home and for picnics, outdoor parties, and potlucks.
- At work, see if "recharged" cartridges for laser printers, copiers, and fax machines are available. They not only reduce waste, but also typically save money.
- Cloth napkins, sponges, or dishcloths can be used around the house. These can be washed over and over again.
- Look for items that are available in refillable containers. For example, some bottles and jugs for beverages and detergents are made to be refilled and reused, either by the consumer or the manufacturer.
- When possible, use rechargeable batteries to help reduce garbage and to keep toxic metals found in some batteries out of the waste stream. Another alternative is to look for batteries with reduced toxic metals.
- When using single-use items, remember to take only what is needed. For example, take only one napkin or ketchup packet if more are not needed.
- Remember, if your goal is to reduce solid waste, think about reusables.

4.

Maintain and repair durable products.



If maintained and repaired properly, products such as long-wearing clothing, tires, and appliances are less likely to wear out or break and will not have to be thrown out and replaced as frequently. Although durable products sometimes cost more initially, their extended life span may offset the higher cost and even save money over the long term.

- Consider long-lasting appliances and electronic equipment with good warranties. Check reports for products with a record of high consumer satisfaction and low breakdown rates. Also, look for those products that are easily repaired.
- Keep appliances in good working order. Follow manufacturers' suggestions for proper operation and maintenance. Manufacturers' service departments may have toll-free numbers; phone toll-free directory assistance at 1-800-555-1212 to find out.
- High-quality, long-lasting tires for cars, bicycles, and other vehicles are available. Using them reduces the rate at which tires are replaced and disposed of. Also, to extend tire life, check tire pressure once a month, follow the manufacturer's recommendations for upkeep, and rotate tires routinely. In addition, retread and remanufactured tires can reduce tire waste.
- Mend clothes instead of throwing them away. Where possible, repair worn shoes, boots, handbags, and briefcases.
- Whenever intended for use over a long period of time, choose furniture, luggage, sporting goods, toys, and tools that will stand up to vigorous use.
- Consider using low-energy fluorescent light bulbs rather than incandescent ones. They'll last longer, which means fewer bulbs are thrown out, and cost less to replace over time.

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5.

Reuse bags, containers, and other items.

Many everyday items can have more than one use. Before discarding bags, containers, and other items, consider if it is hygienic and practical to reuse them. Reusing products extends their lives, keeping them out of the solid waste stream longer. Adopt the ideas that work for you, add some of your own, and then challenge others in your school, office, and community to try these ideas and to come up with others.

Reuse paper and plastic bags and twist ties. If it's practical, keep a supply of bags on hand to use on the next shopping trip, or take a string, mesh, or canvas tote bag to the store. When a reusable bag is not on hand and only one or two items are being purchased, consider whether you need a bag at all.

Reuse scrap paper and envelopes. Use both sides of a piece of paper for writing notes before recycling it. Save and reuse gift boxes, ribbons, and larger pieces of wrapping and tissue paper. Save packaging, colored paper, egg cartons, and other items for reuse or for arts and crafts projects at day-care facilities, schools, youth facilities, and senior citizen centers. Find other uses or homes for old draperies, bedding, clothing, towels, and cotton diapers. Then cut up what's left for use as patchwork, rags, doll clothes, rag rugs, or other projects.

Reuse newspaper, boxes, packaging "peanuts," and "bubble wrap" to ship packages. Brown paper bags are excellent for wrapping parcels.

Wash and reuse empty glass and plastic jars, milk jugs, coffee cans, dairy tubs, and other similar containers that otherwise get thrown out. These containers can be used to store leftovers as well as buttons, nails, and thumbtacks. An empty coffee can makes a fine flower pot.

Turn used lumber into birdhouses, mailboxes, compost bins, or other woodworking projects.

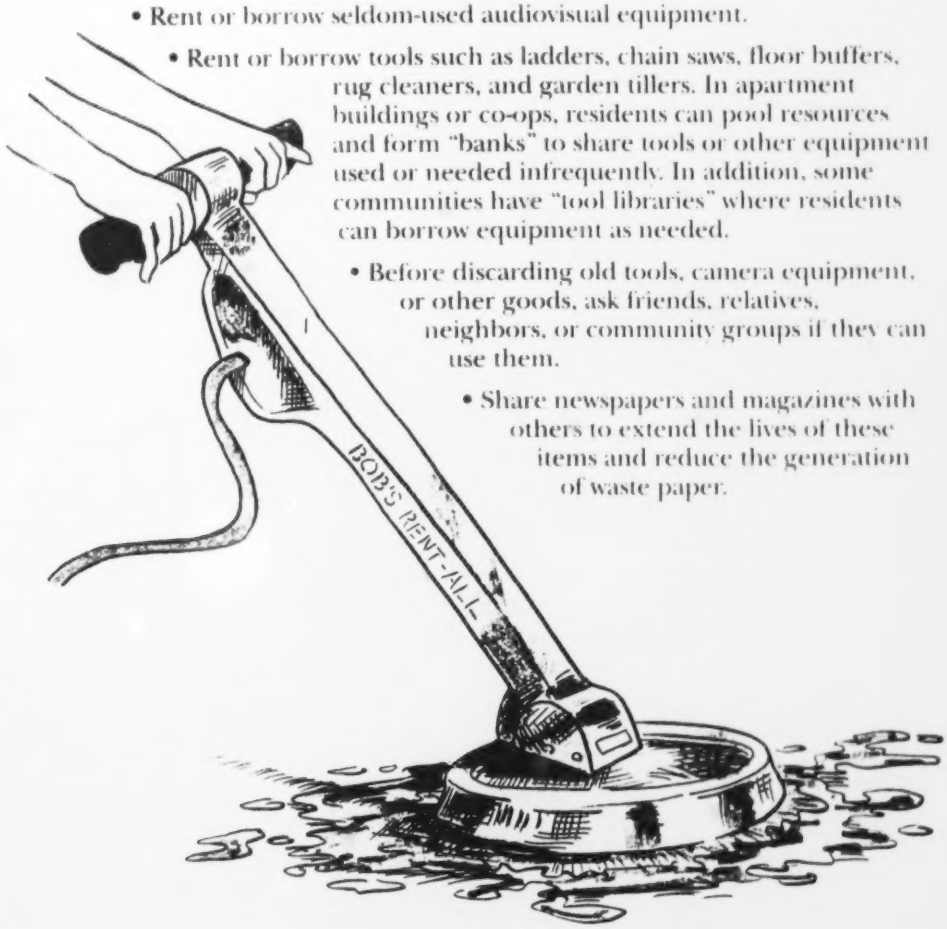
CAUTION: Do not reuse containers that originally held products such as motor oil or pesticides. These containers and their potentially harmful residues should be discarded (following manufacturers' instructions on the label) as soon as they are empty. When you no longer have a use for a full or partially full container, take it to a community household hazardous waste collection. Also, never store anything potentially harmful in containers designed for food or beverages. Always label containers and store them out of the reach of children and pets.

6.

Borrow, rent, or share items used infrequently.

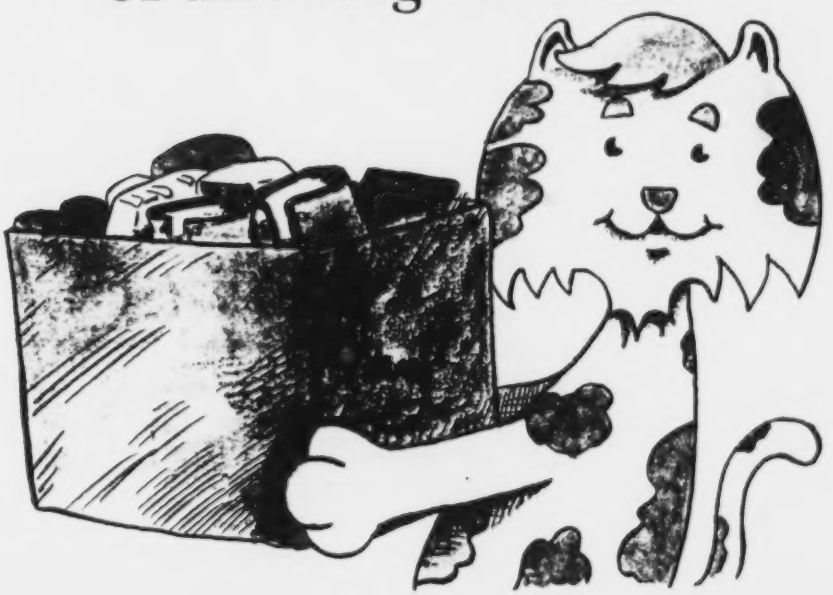
Seldom-used items, like certain power tools and party goods, often collect dust, rust, take up valuable storage space, and ultimately end up in the trash. Consider renting or borrowing these items the next time they're needed. Infrequently used items also might be shared among neighbors, friends, or family. Borrowing, renting, or sharing items saves both money and natural resources.

- Rent or borrow party decorations and supplies such as tables, chairs, centerpieces, linens, dishes, and silverware.
- Rent or borrow seldom-used audiovisual equipment.
- Rent or borrow tools such as ladders, chain saws, floor buffers, rug cleaners, and garden tillers. In apartment buildings or co-ops, residents can pool resources and form "banks" to share tools or other equipment used or needed infrequently. In addition, some communities have "tool libraries" where residents can borrow equipment as needed.
- Before discarding old tools, camera equipment, or other goods, ask friends, relatives, neighbors, or community groups if they can use them.
- Share newspapers and magazines with others to extend the lives of these items and reduce the generation of waste paper.



7.

Sell or donate goods instead of throwing them out.



One person's trash is another person's treasure. Instead of discarding unwanted appliances, tools, or clothes, try selling or donating them. Opting for used and "irregular" items is another good way to practice source reduction. Such products are often less expensive than new or "first-quality" items, and using them will keep them from being thrown away.

- Donate or resell items to thrift stores or other organizations in need. Donors sometimes receive tax deductions or even cash. These organizations typically take everything from clothes and textiles to appliances and furniture. All should be clean and of respectable quality.
- Sell secondhand items at fairs, bazaars, swap meets, and garage sales.
- Give hand-me-down clothes to family members, neighboring families, or the needy. Consider acquiring used clothing at thrift or consignment shops. The condition of used clothing in these stores is screened: clothes are typically laundered and cannot have tears or stains.
- Consider conducting a food or clothing drive to help others. Where appropriate, encourage area merchants to donate damaged goods or food items that are still edible to food banks, shelters, and other groups that care for the needy.

8.

Choose recyclable products and containers and recycle them.

When you've done all you can to avoid waste, recycle. Producing goods from recycled materials typically consumes less energy and conserves raw materials. Yet, our landfills are packed with many packages and products that can be recycled.

- Consider products made of materials that are collected for recycling locally; in many communities, this includes glass, aluminum, steel, some paper and cardboard, and certain plastics. Check with appropriate community officials, volunteer groups, or recycling businesses to determine what materials are collected for recycling. If a system is not in place to return a certain type of material, that material is not easily "recyclable."
- Participate in community recycling drives, curbside programs, and drop-off collections. Call community officials, the local recycling center, or a nearby recycling business to find out if and how materials should be separated. For example, some communities require that glossy inserts be segregated from newspaper, and that different types of cans be separated. A magnet can be used to distinguish steel or bimetal cans from aluminum cans (a magnet does not stick to aluminum). Also, investigate curbside pickup schedules, determine what materials are accepted, locate drop-off sites, and find out when these sites are open.
- If a recycling program does not exist in your community, participate in establishing one. Call local salvage operators to see if they will accept or pick up materials for recycling. Work with community officials to determine the most cost-effective recycling options for your area.
- Take used car batteries ("lead-acid batteries"), antifreeze, and motor oil (saved in clean nonbreakable containers) to participating automobile service centers and other places that collect these items for recycling.
- As more businesses and organizations provide collection opportunities, take advantage of them. For example, many grocery stores collect bags for recycling.

The Degradables Debate

One of the biggest debates in solid waste has centered on claims that certain products such as some plastic bags, paper products, and other goods are degradable. Are such products helpful in solving the solid waste dilemma? Do they save landfill space?

In truth, degradation occurs very slowly in modern landfills. Sunlight can't penetrate, so photodegradation can't occur. Furthermore, researchers have unearthed cabbages, carrots, and readable newspapers that have been in landfills for 30 years or more. It is unlikely that products marketed as degradable would achieve better results. Even if biodegradable products do perform exactly as they are supposed to, they still use up resources that could be reclaimed through recycling.

Biodegradability of natural materials such as lawn trimmings and some foods does have a place in solid waste management. That place is composting (see tip #10). Whether in the backyard or in community facilities, composting can take advantage of degradability. This is nature's way of recycling organic material into humus that enriches soil and returns nutrients to the earth.

1. The life of a peanut butter jar begins on the supermarket shelf, filled with your favorite brand. When emptied and cleaned out, you and your family can use it in many practical ways.

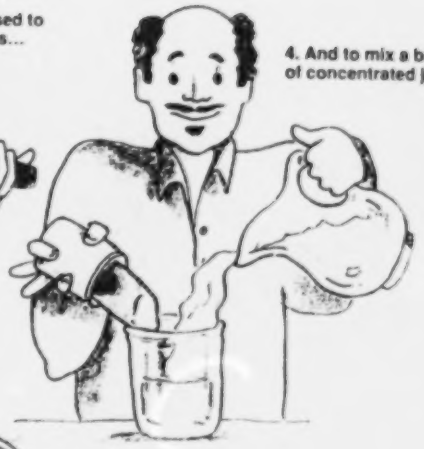
2. It's a perfect container for displaying a prized marble collection.

9. When you collect too many peanut butter jars, be sure to recycle the extras. They may be used to manufacture new peanut butter jars or other containers.

8. Then use it to show off the beautiful flowers you picked for the dinner table when the fishing is done.

7. Take the jar on your next fishing trip to carry live bait.

3. It can be used to store leftovers...



4. And to mix a batch of concentrated juice.

5. It can be taken back to the store to buy foods in bulk, such as honey, maple syrup, and even more peanut butter.

6. The jars also make great cookie cutters.

9.

Select products made from recycled materials.

Participating in a local or regional recycling program is only part of the recycling process. For recycling to succeed, recyclable materials must be processed into new products, and those products must be purchased and used.

- Look for items in packages and containers made of recycled materials. Many bottles, cans, paper wrappings, bags, cereal boxes, and other cartons and packages are made from recycled materials.
- Use products with recycled content whenever you can. For instance, many paper, glass, metal, and plastic products contain recovered materials. Some examples are stationery, wrapping paper, computer paper, and many containers. Many of these items are available in grocery, drug, and other retail stores. Mail-order catalogues, stationers, and print shops also may stock these and other recycled items.
- When checking products for recycled content, look for a statement that recycled materials were used and, if possible, choose the item with the largest percentage of recycled content, if known. You can also call directory assistance at 1-800-555-1212 to obtain manufacturers' 800 numbers to find out how much recycled material their products contain.
- Encourage state and local government agencies, local businesses, and others to purchase recycled products such as paper, re-refined oil, and retread tires. For the federal government, guidelines already exist that mandate the purchase of these and other products.

Reducing Unwanted Advertising Mail

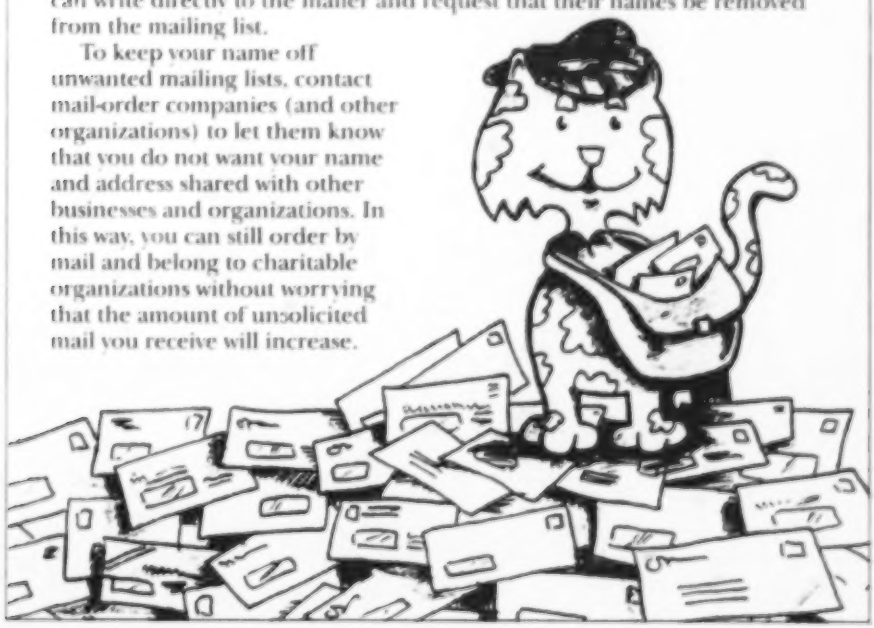
Each year, millions of Americans make one or more purchases through the mail. When people make these mail-order purchases, their names often are added to a list and marketed to other companies that do business through the mail. While many people enjoy the catalogues they receive as a result of these lists, those who would like to receive less national advertising mail can ask companies not to rent or share their names with other mailers. People who choose not to shop at home can also write to:

Mail Preference Service
Direct Marketing Association
11 West 42nd Street
P.O. Box 3861
New York, NY 10163

The Mail Preference Service is a no-charge service that removes names from many national mailing lists. Individuals who would like to use this service are requested to provide their names and addresses (including zip code), and any spelling variations they have noticed on mailing labels, to the Mail Preference Service.

It may take a few months before there is a noticeable decrease in the amount of national advertising mail delivered. In addition, local advertising mail, such as store flyers, will not be affected. In these cases, people can write directly to the mailer and request that their names be removed from the mailing list.

To keep your name off unwanted mailing lists, contact mail-order companies (and other organizations) to let them know that you do not want your name and address shared with other businesses and organizations. In this way, you can still order by mail and belong to charitable organizations without worrying that the amount of unsolicited mail you receive will increase.



10.

Compost yard trimmings and some food scraps.

Backyard composting of certain food scraps and yard trimmings can significantly reduce the amount of waste that needs to be managed by the local government or put in a landfill. When properly composted, these wastes can be turned into natural soil additives for use on lawns and gardens, and used as potting soil for house plants. Finished compost can improve soil texture, increase the ability of the soil to absorb air and water, suppress weed growth, decrease erosion, and reduce the need to apply commercial soil additives.

- Learn how to compost food scraps and yard trimmings (see the guidelines on the next page). For more information, consult reference materials on composting, or check with local environmental, agricultural, or park services. Composting foods in highly populated areas is not recommended because it can attract rodents and other pests.
- Participate in local or regional programs that collect compostable materials. If no program is in place, contact public officials and community leaders about setting one up.
- If there's no room for a compost pile, offer compostable materials to community composting programs or garden projects near you.
- If you have a yard, allow mown grass clippings to remain on the lawn to decompose and return nutrients back to the soil, rather than bagging and disposing of them.

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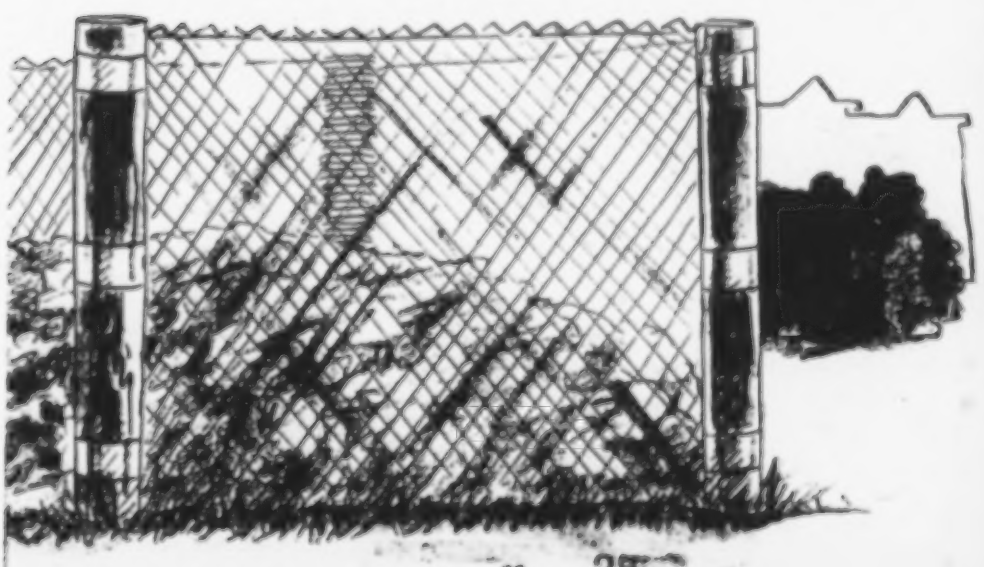
Composting Is Easy!

A compost pile can be set up in a corner of the yard with few supplies. Choose a level spot about 3- to 5-feet square near a water source and preferably out of direct sunlight. Clear the area of sod and grass. When building a composting bin, such as with chicken wire, scrap wood, or cinder blocks, be sure to leave enough space for air to reach the pile. One removable side makes it easier to tend the pile.

Many foods can be composted, including vegetable trimmings, egg shells, coffee grounds with filters, and tea bags. In addition to leaves, grass, and yard clippings, vacuum cleaner lint, wool and cotton rags, sawdust, shredded newspaper, and fireplace ashes can be composted. DO NOT compost meats, dairy foods, or any fats, oil, or grease because they can attract pests.

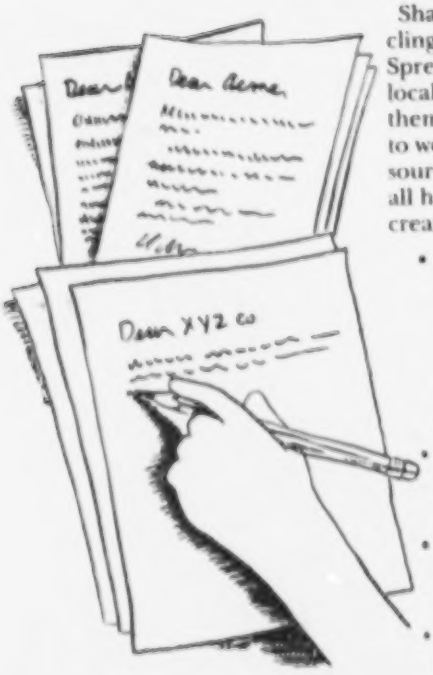
Start the pile with a 4-inch layer of leaves, loose soil, or other coarse yard trimmings. If you are going to compost food scraps (a slightly more involved process), you should mix them with yard trimmings when adding them to the pile. Alfalfa meal or clean cat litter may be added to the pile to absorb odors. In dry weather, sprinkle water on the pile, but don't get it too soggy. Turn the pile every few weeks with a pitchfork to circulate air and distribute moisture evenly. Don't be surprised by the heat of the pile or if you see worms, both of which are part of the decomposition process. Make sure children do not play in the composting pile or bin.

In most climates, the compost is done in 3 to 6 months when it becomes a dark crumbly material that is uniform in texture. Spread it in the garden or yard beds or under the shrubbery. The compost also can be used as potting soil.



11.

Educate others on source reduction and recycling practices. Make your preferences known to manufacturers, merchants, and community leaders.



Share information about source reduction, recycling, and composting with others. Spread the word to family, friends, neighbors, local businesses, and decision-makers. Encourage them to learn more about solid waste issues and to work toward implementing and promoting source reduction, recycling, and composting. We all have the power to influence others and help create the type of world in which we want to live.

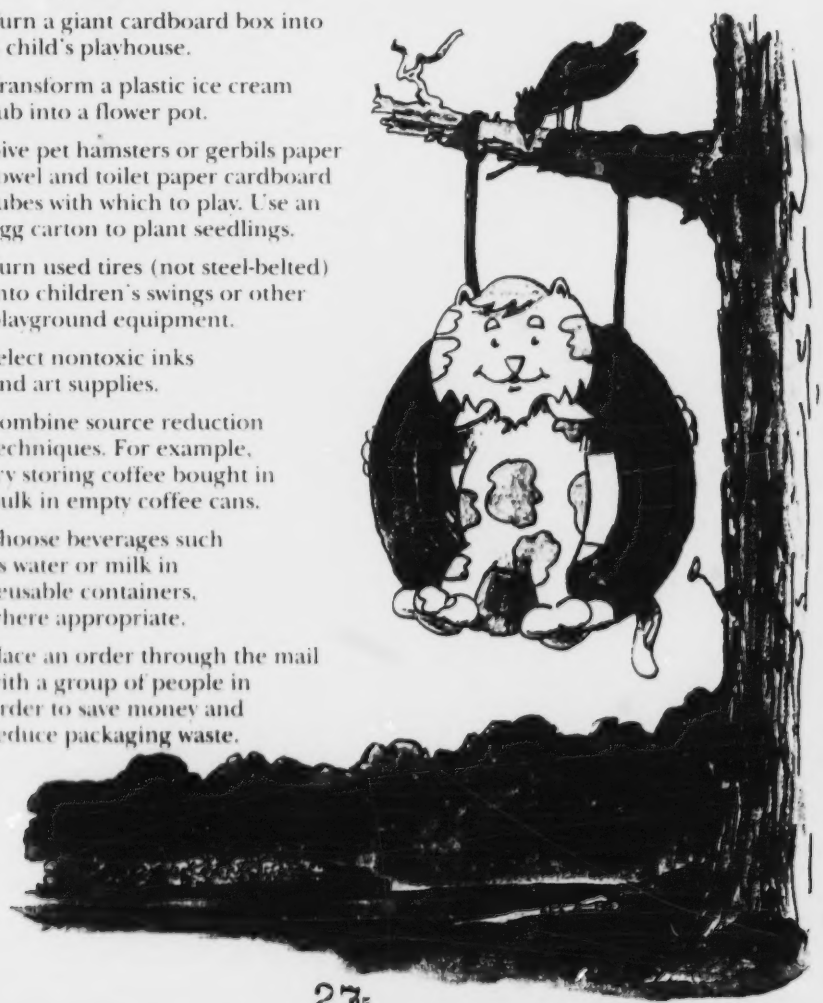
- Consider writing to companies to encourage them to reduce unnecessary packaging and the use of hazardous components in products. In addition, let companies know when they've made positive changes. Many companies offer toll-free 800 numbers you can call with these comments.
- Encourage source reduction, recycling, and composting programs for yard trimmings in the community.
- Where appropriate, encourage the use of reusable, recycled, and recyclable materials in the workplace.
- Encourage the use of efficient, long-lasting equipment.
- Urge schools to provide environmental education and to teach about source reduction, recycling, and composting.
- Support an environmentally sound waste program in your community that starts with source reduction. Your community also needs access to adequate and safe solid waste facilities such as recycling and composting centers, combustors, and landfills.

12.

Be creative—find new ways to reduce waste quantity and toxicity.

There are many ways to reduce the amount and the toxicity of solid waste. By thinking creatively, many new uses for common items and new possibilities for source reduction and recycling can be discovered. Here are just a few ideas. Now, try some of your own!

- Turn a giant cardboard box into a child's playhouse.
- Transform a plastic ice cream tub into a flower pot.
- Give pet hamsters or gerbils paper towel and toilet paper cardboard tubes with which to play. Use an egg carton to plant seedlings.
- Turn used tires (not steel-belted) into children's swings or other playground equipment.
- Select nontoxic inks and art supplies.
- Combine source reduction techniques. For example, try storing coffee bought in bulk in empty coffee cans.
- Choose beverages such as water or milk in reusable containers, where appropriate.
- Place an order through the mail with a group of people in order to save money and reduce packaging waste.



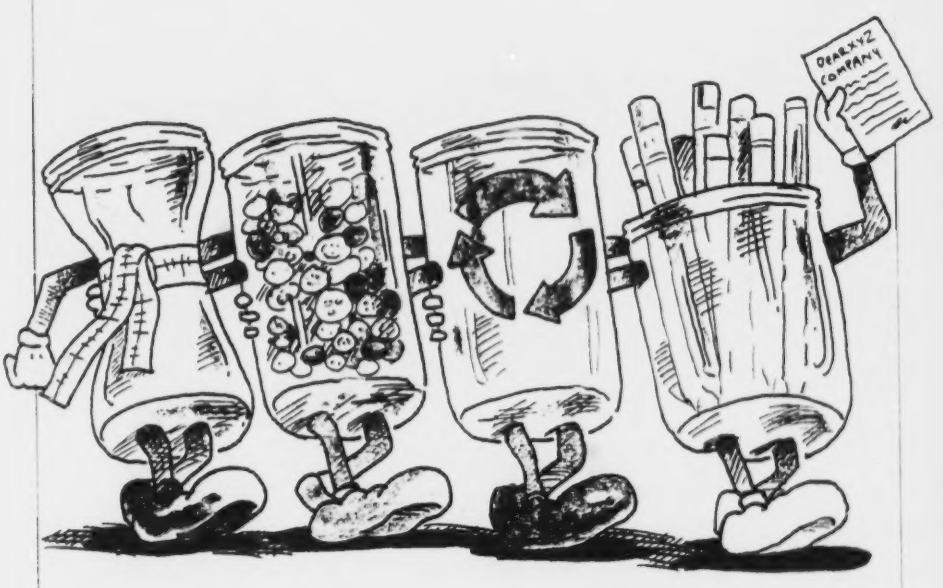
It's far better to reduce the toxicity and amount of solid waste in the first place than to cope with it after it has been created. Through source reduction, recycling, and composting, many environmental benefits and cost savings can be realized. Just remember the four "R's"....

REDUCE the amount of trash discarded.

REUSE containers and products.

RECYCLE, use recycled products, and compost.

RESPOND to the solid waste dilemma by reconsidering waste-producing activities and by expressing preferences for less waste.



Success with Source Reduction

People from small towns and big cities across America are implementing innovative source reduction programs and are realizing economic as well as environmental benefits.

You can encourage and support these changes in your community by working with civic groups, local merchants, and county boards. Through consumer education campaigns, school curricula, economic incentives, and other legislative, financial, and educational measures, your community can set the pace for new ways to reduce solid waste. Here are a few examples of how communities and businesses are reducing waste.

Model Communities

In a growing number of Illinois communities, facilities ranging from industries to schools are practicing source reduction by following the lead of community role models. The Central States Education Center (CSEC), a nonprofit environmental group, has developed a Model Community Program to help communities find ways to reduce waste, eliminate toxins, recycle, and purchase products that contain recycled materials. Through this program, businesses, organizations, and other groups serve as source reduction role models in their communities. The facilities institutionalize various source reduction strategies through in-house committees and on-going educational programs.

Several schools, industries, churches and other organizations participate in this program. In a model industry, for example, solvent recycling machines are used to make solvents last three times longer. Model supermarkets have a shelf-labeling program to highlight products with less packaging. Additional model facilities include churches, banks, libraries, a radio station, a utility company, newspapers, a theater, a sorority, and even a city hall. At present there are over 70 model facilities in eight different Illinois communities.

As a result of these model facilities, less waste is generated in the participating communities, and much of what is generated gets routed to the community recycling center, rather than the landfill. For example, one model school reduced cafeteria waste by 40 percent. Interest in the program is growing nationwide as communities use the model program to educate citizens and get them involved in reducing their solid waste.

Berkeley—Doing It Right from the Start

In 1989, Berkeley, California, implemented a citywide campaign to help consumers make environmentally sound decisions. The City uses catchy slogans, such as "do it right from the start," "be picky about packaging," and "overcome overpackaging," to urge shoppers to think about how products are packaged and ultimately disposed of. Consumers tell manufacturers which products they want to use and which products they don't want by leaving them on store shelves.

Since 1989, the initiatives under this program have grown as businesses and residents have embraced the concept. The program now includes an educational campaign directed at elementary schools. An environmental education curriculum has been developed, as well as a training program, to help teachers incorporate recycling and other environmental messages into their science lessons. Other recent initiatives involve city supermarkets, which have printed recycling tips on their grocery bags. Some supermarkets also offer a discount to shoppers who bring their own bags or containers. Finally, a composting program offers subsidized composting bins to Berkeley residents to encourage home composting.

NewsFlash
SOURCE REDUCTION GOOD FOR BUSINESS
Herald Review Saves $18,000 a year
H.M.I. saves millions through waste prevention and reuse!

Source Reduction—Savings for Business

More and more businesses, large and small, are realizing that source reduction can mean a big payoff in reduced waste and costs. For example, a small newspaper in Grand Rapids, Minnesota, the *Herald Review*, has reduced its waste by almost 30,000 pounds annually, which saves over $18,000 per year. Everyone joins in to reduce waste, from reporters switching to narrow-ruled notebooks to save paper, to photographers saving film by planning the number of exposures they need before shooting.

In the office, people reuse mailing labels, rebuild toner cartridges for computer printers, and print on both sides of the paper. A ceramics packaging firm has even been found to purchase the paper left over from the printing process. This "waste exchange" benefits both companies. The newspaper also has found ways to reuse waste ink, film-developing chemicals, and paste-up sheets. These innovative ideas reduce both the amount and the toxicity of the company's wastes.

Also, a large furniture manufacturer, Herman Miller, Inc. (HMI) of Zeeland, Michigan, has reaped savings of $1.4 million annually through waste prevention. It devised packaging containers that can be reused 80 to 100 times and that are made from recycled detergent and milk containers.

Another approach HMI uses is cartonless packaging. This means just placing cardboard edges on the corners of some furniture and wrapping the furniture with plastic film rather than boxing it. The cardboard edges are reused and the plastic film is recycled. This practice has saved HMI $250,000 a year for one type of product. In addition to internal efforts, HMI cosponsors an annual waste exchange fair for other businesses to share information and materials. Workshops are also held to educate attendees about waste prevention. The first fair in 1991 brought together over 300 people and was so successful that attendance tripled in 1992.

What Have You Come Up With?

We want to hear your innovative ideas on how to practice source reduction. Send us a source reduction tip, and we'll send you a magnet that can be used to stick a shopping list to the refrigerator and to distinguish bimetal and steel cans from aluminum cans (magnets are not attracted to aluminum). Quantities are limited. Send your name, address, and tip to Source Reduction Tip, the RCRA Docket (OS-305), U. S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

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Appendix A

Source Reduction Alternatives Around the Home

Many consumers look for ways to reduce the amount and toxicity of waste around the house. This can be done, in some cases, by using alternative methods or products without hazardous constituents to accomplish a certain task. Here are just a few ideas to get you started.

Drain cleaner	Use a plunger or plumber's snake.
Oven cleaner	Clean spills as soon as the oven cools using steel wool and baking soda; for tough stains, add salt (do not use this method in self-cleaning or continuous-cleaning ovens).
Glass cleaner	Mix 1 tablespoon of vinegar or lemon juice in 1 quart of water. Spray on and use newspaper to wipe dry.
Toilet bowl cleaner	Use a toilet brush and baking soda or vinegar. (This will clean but not disinfect.)
Furniture polish	Mix 1 teaspoon of lemon juice in 1 pint of mineral or vegetable oil, and wipe furniture.
Rug deodorizer	Deodorize dry carpets by sprinkling liberally with baking soda. Wait at least 15 minutes and vacuum. Repeat if necessary.
Silver polish	Boil 2 to 3 inches of water in a shallow pan with 1 teaspoon of salt, 1 teaspoon of baking soda, and a sheet of aluminum foil. Totally submerge silver and boil for 2 to 3 more minutes. Wipe away tarnish. Repeat if necessary. (Do not use this method on antique silver knives. The blade will separate from the handle.) Another alternative is to use nonabrasive toothpaste.
Plant sprays	Wipe leaves with mild soap and water; rinse.
Mothballs	Use cedar chips, lavender flowers, rosemary, mint, or white peppercorns.
Flea and tick products	Put brewer's yeast or garlic in your pet's food; sprinkle fennel, rue, rosemary, or eucalyptus seeds or leaves around animal sleeping areas.

Although the suggested mixtures have less hazardous ingredients than many commercial cleaners and pesticides, they should be used and stored with similar caution. Please follow these guidelines for any household cleaner or pesticide.

- DO NOT mix anything with a commercial cleaning agent.
- If you do store a homemade mixture, make sure it is properly labelled and do not store it in a container that could be mistaken for a food or beverage.
- When preparing alternatives, mix only what is needed for the job at hand and mix them in clean, reusable containers. This avoids waste and the need to store any cleaning mixture.

Appendix B

Reusable Vocabulary

Bimetal - Typically refers to beverage containers with steel bodies and aluminum tops. Steel companies do recycle bimetal cans, but they are handled differently in the recycling stream from aluminum cans.

Combustion - The controlled burning of municipal solid waste to reduce volume, and, commonly, to recover energy.

Composting - The controlled microbial decomposition of organic matter (such as food scraps and yard trimmings) in the presence of oxygen into a humus- or soil-like material.

Curbside collection - A method of collecting recyclable materials at individual homes or places of business by municipal or private parties for transfer to a designated collection site or recycling facility.

Drop-off - A method of collecting recyclable materials where individuals transport the materials to a designated collection site.

Household hazardous waste - Products containing hazardous substances that are used and disposed of by individual rather than industrial consumers. These products include some paints, solvents, and pesticides.

Integrated waste management - The complementary use of a variety of practices to handle municipal solid waste safely and effectively. Integrated waste management techniques include source reduction, recycling, composting, combustion, and landfilling.

Landfilling - The disposal of solid waste at engineered facilities in a series of compacted layers on land and the frequent daily covering of the waste with soil. Fill areas are carefully prepared to prevent nuisances or public health hazards, and clay and/or synthetic liners are used to prevent releases to ground water.

Municipal solid waste (MSW) - Waste generated in households, commercial establishments, institutions, and businesses. MSW includes used paper, discarded cans and bottles, food scraps, yard trimmings, and other items. Industrial process wastes, agricultural wastes, mining wastes, and sewage sludge are not MSW.

Pre-consumer materials - Recovered materials obtained from manufacturers.

Post-consumer materials - Recovered materials from a consumer-oriented recycling collection system or drop-off center.

Recyclable - Products or materials that can be collected, separated, and processed to be used as raw materials in the manufacture of new products.

Recycled content - The portion of a product's or package's weight that is composed of materials that have been recovered from waste; this may include pre-consumer or post-consumer materials.

Recycling - Separating, collecting, processing, marketing, and ultimately using a material that would have been thrown away.

Reuse - The use of a product more than once in its same form for the same purpose or for different purposes, such as reusing a soft-drink bottle when it is returned to the bottling company for refilling, or reusing a coffee can as a container for nuts and bolts.

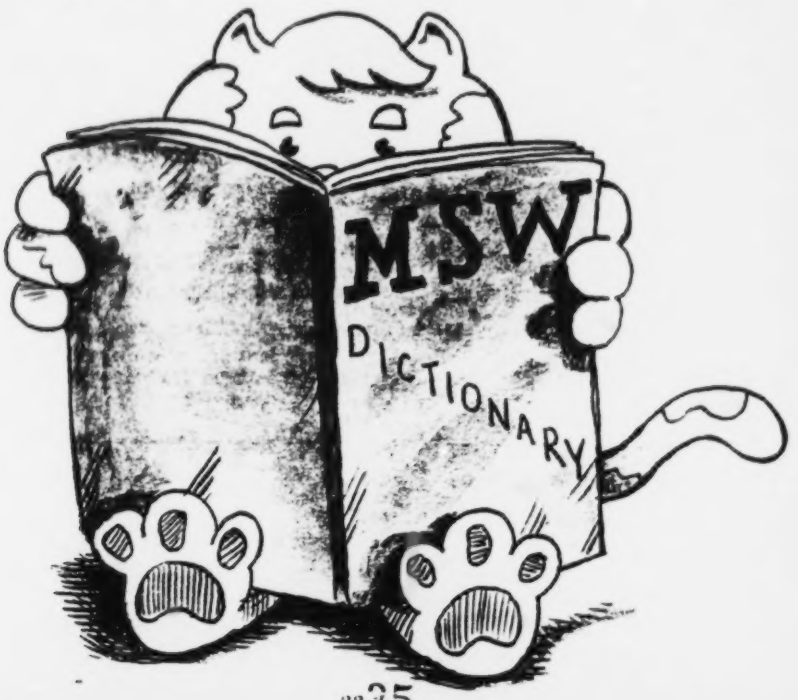
Source reduction - The design, manufacture, purchase, or use of materials to reduce the amount or toxicity of waste. Because it is intended to reduce pollution and conserve resources, source reduction should not increase the net amount or toxicity of wastes generated throughout the life of the product. Source reduction techniques include reusing items, minimizing the use of products that contain hazardous compounds, using only what is needed, extending the useful life of a product, and reducing unneeded packaging.

Source separation - Separating materials (such as paper, metal, and glass) by type at the point of discard so that they can be recycled.

Toxic - Ability (or property) of a substance to produce harmful or lethal effects on humans and/or the environment.

Virgin materials - Resources extracted from nature in their raw form, such as timber or metal ore.

Yard trimmings - The component of solid waste composed of grass clippings, leaves, twigs, branches, and garden refuse.



Appendix C

EPA Resources

The following EPA publications are available at no charge through the Agency's RCRA Hotline. Call 1-800-424-9346 Monday through Friday, 8:30 a.m. to 7:30 p.m. EST. For the hearing impaired, the number is TTD (800) 553-7672. In Washington, DC, call (703) 920-9810 or TDD (703) 486-3323.

Bibliography of Municipal Solid Waste Management Alternatives (EPA/530-SW-89-055). A listing of approximately 200 publications available from industry, government, and environmental groups.

Characterization of Municipal Solid Waste in the United States: 1990 Update (EPA/530-SW-90-042). A report characterizing the national solid waste stream in terms of products and materials and examining how these wastes are managed.

Characterization of Products Containing Lead and Cadmium in Municipal Solid Waste in the United States, 1970 to 2000 (EPA/530-SW-89-015C). A report characterizing the products that contribute to the lead and cadmium found in municipal solid waste.

Decision-Maker's Guide to Municipal Solid Waste Management (EPA/530-SW-89-072). A guide book to help policymakers understand and evaluate their current waste management problems and formulate possible solutions.

Environmental Fact Sheet: Yard Waste Composting (EPA/530-SW-91-009). A fact sheet defining composting, the composting process, and how compost can be used.

Getting at the Source: Strategies for Reducing Municipal Solid Waste, Executive Summary (1991). Excerpts from a report prepared under an EPA grant by the World Wildlife Fund & Conservation Foundation. The report examines the evolving concept of source reduction and lays out an evaluation framework that decision-makers can use to help devise effective source reduction strategies.

Methods to Manage and Control Plastic Wastes - Executive Summary (EPA/530-SW-89-051A). The summary of a report examining many issues related to plastics, including reduction, recycling, degradability, and damage to marine life.

Plastics Fact Sheets. A series of five fact sheets about plastics:

- *Plastics: The Facts about Production, Use, and Disposal* (EPA/530-SW-90-017A). A fact sheet reviewing major uses of plastics and impacts of disposal.
- *The Facts about Plastics in the Marine Environment* (EPA/530-SW-90-017B). A fact sheet summarizing the main sources and impact of plastics found in the ocean.
- *Plastics: The Facts on Source Reduction* (EPA/530-SW-90-017C). A fact sheet describing the possibilities for source reduction of different types of plastic products.
- *The Facts on Degradable Plastics* (EPA/530-SW-90-017D). A fact sheet outlining the information currently available on degradable plastics, their uses, and their impacts on people and the environment.

- *The Facts on Recycling Plastics* (EPA/530-SW-90-017E). A fact sheet summarizing the opportunities available for recycling plastics, and the current state of plastic recycling technology.

Recycling (EPA/530-SW-88-050). A concise citizen's brochure on recycling and its role in solid waste management.

Recycle Today! A series of five publications aimed at educators and students:

- *Recycle Today! An Educational Program for Grades K-12* (EPA/530-SW-90-025). A concise pamphlet explaining the goals and objectives of EPA's educational recycling program and the four resources listed below.
- *Let's Reduce and Recycle! A Curriculum for Solid Waste Awareness* (EPA/530-SW-90-005). A booklet of lessons and activities to teach students in grades K-12 about solid waste generation and management. It teaches a variety of skills, including science, vocabulary, mathematics, and creative writing.
- *School Recycling Programs. Handbook for Educators* (EPA/530-SW-90-023). A handy manual with step-by-step instructions on how to set up a school recycling program.
- *Adventures of the Garbage Gremlin: Recycle and Combat a Life of Grime* (EPA/530-SW-90-024). A comic book introducing students in grades 4-7 to the benefits of recycling.
- *Ride the Wave of the Future: Recycle Today!* (EPA/530-SW-90-010). A colorful poster designed to appeal to all grade levels that can be displayed in conjunction with recycling activities or used to help foster recycling.

Recycling Works! (EPA/530-SW-89-014). A booklet describing 14 successful state and local recycling programs in the United States.

Reusable News (EPA/530-SW-90-018). A periodic newsletter covering a diverse array of topics related to municipal solid waste management, including source reduction and recycling.

Unit Pricing: Providing an Incentive to Reduce Municipal Solid Waste (EPA/530-SW-91-005). A booklet describing unit pricing systems in which customers are charged for waste collection and disposal services based on the amount of trash they generate.

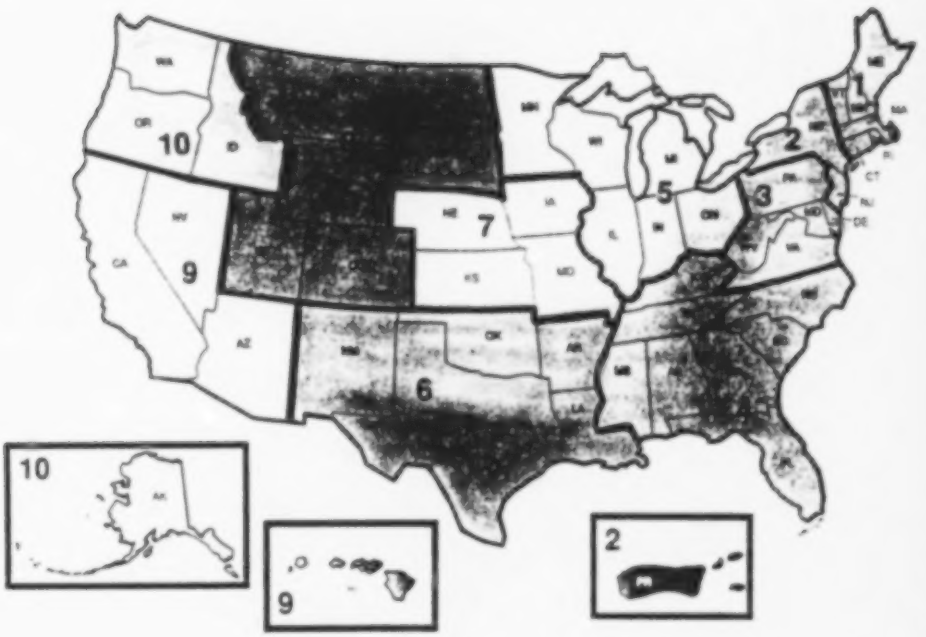
Used Oil Recycling Publications. A series of three brochures and a manual on ways to recycle used oil:

How to Set Up a Local Used Oil Recycling Program (EPA/530-SW-89-039A). An easy-to-follow manual for local decision-makers, environmental groups, and community organizations.

Recycling Used Oil: What Can You Do? (EPA/530-SW-89-039B). A pamphlet describing how the general public can participate in used oil recycling.

Recycling Used Oil: 10 Steps to Change Your Oil (EPA/530-SW-89-039C). A pamphlet describing how citizens can change their car oil.

Recycling Used Oil: For Service Stations and Other Vehicle-Service Facilities (EPA/530-SW-89-039D). A pamphlet describing how service station owners can play a key role in facilitating used oil recycling.



EPA Regional Offices

Region 1
U.S. EPA - Region 1
J.F.K. Federal Building
Boston, MA 02203
(617) 573-5720

Region 2
U.S. EPA - Region 2
26 Federal Plaza
New York, NY 10278
(212) 264-3384

Region 3
U.S. EPA - Region 3
841 Chestnut Street
Philadelphia, PA 19107
(215) 597-9800

Region 4
U.S. EPA - Region 4
345 Courtland Street, N.E.
Atlanta, GA 30365
(404) 347-2091

Region 5
U.S. EPA - Region 5
77 West Jackson Boulevard
Chicago, IL 60604
(312) 353-2000

Region 6
U.S. EPA - Region 6
First Interstate Bank Tower
1445 Ross Avenue
Dallas, TX 75270-2733
(214) 655-6655

Region 7
U.S. EPA - Region 7
726 Minnesota Avenue
Kansas City, KS 66101
(913) 551-7050

Region 8
U.S. EPA - Region 8
Denver Place
999 18th Street, Suite 500
Denver, CO 80202-2405
(303) 293-1662

Region 9
U.S. EPA - Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-2074

Region 10
U.S. EPA - Region 10
1200 Sixth Avenue
Seattle, WA 98101
(206) 442-2782

Communications Services Branch (OS-305)
Office of Solid Waste
U.S. Environmental Protection Agency
401 M Street, SW.
Washington, DC 20460

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